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A
Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Hubert SCHALK et al.

Serial No.: 10/816,524

Filed: April 1, 2004

For: Folding Device with a Folding Drum

Examiner: Desai, Hemant
Group Art: 3721

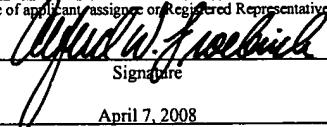
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Signature

April 7, 2008

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APPEAL BRIEF

SIR:

This is an appeal, pursuant to 37 C.F.R. § 41.37 from the decision of the Examiner in the above-identified application, as set forth in the Final Office Action of August 14, 2007 wherein the Examiner finally rejected appellant's claims. The rejected claims are reproduced in the Appendix A attached hereto. A Notice of Appeal was filed on January 14, 2008.

The fee of \$510.00 for filing an Appeal Brief pursuant to 37 C.F.R. § 41.20 is submitted herewith. Any additional fees or charges in connection with this application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

REAL PARTY IN INTEREST

The assignee, MAN Roland Druckmaschinen AG, of applicant, Hubert Schalk, is the real party of interest in the above-identified U.S. Patent Application.

RELATED APPEALS AND INTERFERENCES

There are no other appeals and/or interferences related to the above-identified application at the present time.

STATUS OF CLAIMS

Claims 1, 2, 5, 8 and 10-19 are pending, have been finally rejected, and are the claims on appeal. Claims 3-4, 6, 7 and 9 have been cancelled. No claims have been allowed.

STATUS OF AMENDMENTS

There have been no Amendments filed subsequent to the Final Office Action.

SUMMARY OF THE CLAIMED SUBJECT MATTER

Appellants' disclosed apparatus of independent claim 1 is directed to a folding device for producing a second longitudinal fold in products of a rotary press (see paragraph [0015] of the specification as originally filed; FIG. 1). The device includes a folding drum (1) that comprises two opposing side walls (7, 8) and a carrier (12) connected to the folding drum (1) at a location between the side walls (7, 8) (see paragraph [0016] of the instant specification; FIG. 1). The carrier (12) has a small material thickness in a longitudinal direction of the folding device and a large area extending approximately over an entire cross section of an interior of the

folding drum (1) in a transverse direction of the folding device (see paragraph [0019] of the instant specification; FIG. 1).

There is also a folding-blade shaft (5) that has two ends, where each of the two ends of the folding-blade shaft (5) are rotatably mounted in a respective one of the sides walls (7, 8) in the folding drum (1), and where the folding-blade shaft (5) has at least two folding-blade carriers (3, 17) for holding folding blades (2, 16) which are spaced apart from one another in a region proximate the carrier (12) by a distance smaller than 10 millimeters (see FIG. 1 and paragraphs [0012] and [0017] of the instant specification).

In addition, a pair of bearings (9, 10) are arranged in the side walls (7, 8) of the folding drum (1), where the ends of the folding-blade shaft (5) are mounted respectively in the side walls (7, 8) by the pair of bearings (9, 10) (see paragraph [0019]; FIG. 1). At least one further bearing (11) is also arranged in the carrier (12), where the folding-blade shaft (5) is further rotatably supported in the carrier (12) by the at least one further bearing between the ends of the folding-blade shaft (5) (see paragraph [0019]; FIG. 1).

In this disclosed embodiment, the pair of bearings (9, 10) and the at least one further bearing (11) comprise self-aligning roller bearings.

Appellants' disclosed apparatus of independent claim 14 is directed to a folding device for producing a second longitudinal fold in products of a rotary press (see paragraph [0015] of the specification as originally filed; FIG. 1). The device includes a folding drum (1) having a longitudinal axis and comprising two opposing side walls (7, 8) and a drum wall extending longitudinally between the side walls (7, 8), where the drum wall has a C-shaped cross

section that defines a circumferential gap between circumferential ends along a longitudinal length thereof (see paragraph [0019] of the instant specification; FIG. 1 and FIG. 2).

There is also a folding-blade shaft (5) that has two ends, where each of the two ends of the folding-blade shaft (5) are rotatably mounted in a respective one of the sides walls (7, 8) in the folding drum (1), and where the folding-blade shaft (5) has at least two folding-blade carriers (3, 17) for holding folding blades (2, 16) (see FIG. 1 and paragraph [0017] of the instant specification).

In addition, the folding device includes a carrier (12) that is connected to the drum wall, where the carrier (12) extends transversely to the longitudinal axis and rotatably supports the folding-blade shaft (5) at a location between the side walls (7, 8), and where the carrier (12) has a small material thickness in a longitudinal direction of the folding device and a large area extending approximately over the entire cross section of an interior of the folding drum (1), and the folding blades are spaced apart from one another in a region proximate the carrier (12) by a distance smaller than 10 millimeters (see paragraphs [0012] and [0019] of the instant specification; FIG. 1).

GROUNDS OF REJECTION TO BE REVIEWED IN APPEAL

1. Whether independent claims 1 and 14 and dependent claims 2, 8 and 15-19 are patentable under 35 U.S.C. §103(a) over U.S. Patent No. 1,471,755 (“*Schmidt*”) in view of U.S. Patent No. 4,811,688 (“*Turner*”)?
2. Whether dependent claim 5 is patentable under 35 U.S.C. §103(a) over *Schmidt* in view of *Turner*, and further in view of U.S. Patent No. 6,527,029 (“*Ryser*”)?

3. Whether dependent claims 10-13 are patentable under 35 U.S.C. §103(a) over *Schmidt* in view of *Turner*, and further in view of U.S. Patent No. 5,118,214 (“*Petrzelka*”)?
4. Whether dependent claim 16 is patentable under 35 U.S.C. §103(a) over *Schmidt*?
5. Whether dependent claims 18-19 are patentable under 35 U.S.C. §103(a) over *Schmidt* in view of *Turner*?

ARGUMENT

1. Rejection of claims 1, 2, 8, and 14-19 under 35 U.S.C. §103

Independent claims 1 and 14

Independent claim 1 recites the limitation “said folding-blade shaft having at least two folding-blade carriers for holding folding blades which are spaced apart from one another in a region proximate said carrier by a distance smaller than 10 millimeters” which was formerly recited in dependent claim 9 (now canceled). Independent claim 14 also includes the subject matter of canceled claim 9, i.e., “folding blades being spaced apart from one another in a region proximate said carrier by a distance smaller than 10 millimeters”.

The Examiner (pg. 3 of the August 14, 2007 Final Office Action) concedes that:

Schmidt does not disclose expressly that the folding blades are spaced apart from one another by a distance smaller than 10 millimeters.

However, the Examiner then asserts that:

At the time of the invention, it would have been an obvious matter of *design choice* to a person of ordinary skill in the art to space folding blades apart by 10 millimeters because to improve the fold quality or to accommodate the change in material characteristics *because since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable*

ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. (Emphasis Added)

Appellants respectfully disagree with the Examiner's assertion because (1) *In re Aller* relates to process claims and (2) it would not be an obvious matter of design choice to space the folding blades apart by 10 millimeters based on *Schmidt*.

The Examiner has cited *In re Aller* to provide support for his conclusion that Appellants' claimed limitations constitute nothing more than an obvious design choice. The citation of *In re Aller* is inappropriate, however, because *In re Aller* has nothing to do with determining the patentability of an apparatus claim. Rather, *In re Aller* is directed to determining the patentability of a process claim.

Clearly, Appellants' claimed invention is directed to an apparatus, whereas *In re Aller* is directed to determining the patentability of a process. Therefore, it is clear that *In re Aller* does not apply with respect to determining patentability of the instant claims.

In any event, the claimed range would not be obvious in view of *Schmidt*. More specifically, the carrier having a small material thickness in the longitudinal direction and a large area which extends over the cross section saves weight and permits the spacing of smaller than 10 millimeters between folding blades. Paragraph [0008] of the specification as originally filed discloses that "[i]t is possible to reduce the weight of the entire folding device, preferably the folding drum and/or the folding-blade shaft with the folding-blade carrier, as a result of the at least one further bearing point arranged between the bearings at the two ends, as the forces resulting from the rotation are distributed over at least three bearing points".

As further described at paragraph [0011] of the instant specification, "[i]t is significant that the carrier for accommodating the at least one additional bearing in the central

region of the folding-blade shaft is firstly configured with a small material thickness in the longitudinal direction of the folding device and ... secondly, however, the carrier is configured with a large area which extends over approximately the entire cross section of the interior of the folding drum in the transverse direction of the folding device, in such a way that the stability and torsional rigidity are ensured despite the small material thickness". These features of the carrier, i.e., "a small material thickness in the longitudinal direction of the folding device" and "a large area which extends over approximately the entire cross section of the interior of the folding drum", are recited in independent claim 1 and 14 are not described or taught by *Schmidt*.

An advantage associated with a small material thickness in the longitudinal direction of the folding device is described at paragraph [0012] of the originally filed specification, i.e., "it is possible to arrange the folding blades very close to one another in the region of the carrier, the gap between the folding blades preferably being smaller than 10 millimeters". Thus, the specification provides a carrier having a small material thickness that would accommodate the at least one additional bearing of the folding-blade shaft pursuant to reducing the weight of the entire claimed folding device and allow a gap between the folding blades smaller than 10 millimeters. *Schmidt* is clearly not concerned with reducing weight since a central shaft 38 runs through the entire folding drum instead of using journals at the sidewalls (see FIG. 4 of *Schmidt*) would not permit the claimed gap or motivate the skilled person to size the gap as recited in independent claim 1.

It is thus clear that the specification discloses advantages associated with folding blades that are spaced apart from one another in a region proximate said carrier by a distance smaller than 10 millimeters recited in claims 1 and 14 that is more than *merely* a design choice. Furthermore, *Schmidt* is clearly not concerned with gaps between the blades 15 because each

blade 15 of *Schmidt* has numerous gaps along its length. Accordingly, the structure disclosed by *Schmidt* clearly fails to teach or suggest folding blades that are arranged in the manner as recited in independent claims 1 and 14. Therefore, independent claims 1 and 14 are patentable over *Schmidt* for at least this reason.

The Examiner cites *Turner* in an attempt to cure the shortcomings of *Schmidt*, i.e., self-aligning roller bearings, as recited in independent claim 1. In view of the above, *Schmidt* and *Turner*, individually or in combination, fail to teach or suggest “folding blades that are spaced apart from one another in a region proximate said carrier by a distance smaller than 10 millimeters,” as recited in independent claim 1.

Dependent claims 2, 8, and 15-19 are allowable for at least the same reasons as are independent claims 1 and 14.

Dependent Claim 19

There is no teaching or suggestion within *Schmidt* of a carrier that comprises a sheet-metal blank, as recited in dependent claim 19 which depends from independent claim 1. *Schmidt* (FIG. 1) shows a structure having three walls that support a respective bearing, i.e., two outer walls and an interior wall, through which a shaft 38 extends. However, the middle wall which, *arguendo*, corresponds to Appellants’ claimed carrier is *bulky, thick* and has considerable *heft*. There is simply no reason provided by *Schmidt* to even consider forming this interior wall from a sheet-metal blank. Therefore, the skilled person would not seek to provide a middle wall in the *Schmidt* device that was formed from a sheet-metal blank. The cited art, individually or in combination, fail to teach or suggest the claimed structure associated with a carrier that

comprises a sheet-metal blank. Therefore, dependent claim 19 is patentable over the combination of the art of record for at least this additional reason.

2. **Rejection of Claim 5 under 35 U.S.C. §103**

U.S. Patent No. 6,527,029 (“*Ryser*”) fails to teach or suggest what *Schmidt* and *Turner* lack. Accordingly, dependent claim 5 is patentable under 35 U.S.C. §103 over *Schmidt* in view of *Turner*, and further in view of *Ryser* for the same reasons as is independent claim 1.

3. **Rejection of Claims 10-13 under 35 U.S.C. §103**

U.S. Patent No. 5,118,214 (“*Petrzelka*”) fails to teach or suggest what *Schmidt* and *Turner* lack. Accordingly, dependent claims 10-13 are patentable under 35 U.S.C. §103(a) over *Schmidt* in view of *Turner*, and further in view of *Petrzelka* for the same reasons associated with independent claim 1.

4. **Rejection of Claim 16 under 35 U.S.C. §103**

Dependent claim 16 is patentable under 35 U.S.C. §103(a) over *Schmidt* for the same reasons associated with independent claim 14.

5. **Rejection of Claims 18-19 under 35 U.S.C. §103**

Dependent claims 18-19 are patentable under 35 U.S.C. §103(a) over *Schmidt* in view of *Turner* for the same reasons associated with independent claim 14. Claim 19 is also allowable for the additional reasons mentioned above.

CONCLUSION

For the foregoing reasons, it is respectfully submitted that Appellants' claims are not rendered obvious by the combination of *Schmidt, Turner, Ryser* and *Petrzelka* and are, therefore, patentable over the art of record, and the Examiner's rejections should be reversed.

Respectfully submitted,
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CLAIMS APPENDIX

1. (previously presented) A folding device for producing a second longitudinal fold in products of a rotary press, comprising:

a folding drum comprising two opposing side walls and a carrier connected to the folding drum at a location between said side walls, wherein said carrier has a small material thickness in a longitudinal direction of said folding device and a large area extending approximately over an entire cross section of an interior of said folding drum in a transverse direction of said folding device;

a folding-blade shaft having two ends, each of said two ends of said folding-blade shaft being rotatably mounted in a respective one of said side walls in said folding drum, said folding-blade shaft having at least two folding-blade carriers for holding folding blades which are spaced apart from one another in a region proximate said carrier by a distance smaller than 10 millimeters;

a pair of bearings arranged in said side walls of said folding drum, said ends of said folding-blade shaft being mounted respectively in said side walls by said pair of bearings;

at least one further bearing arranged in said carrier, wherein said folding-blade shaft is further rotatably supported in said carrier by said at least one further bearing between said ends of said folding-blade shaft,

wherein said pair of bearings and said at least one further bearing comprise self-aligning roller bearings.

2. (original) The folding device of claim 1, wherein said at least one further bearing is arranged between adjacent ones of said at least two folding-blade carriers.

3. - 4. (canceled)

5. (original) The folding device of claim 1, wherein said pair of bearings and said at least one further bearing are operatively arranged for receiving lubricating medium from a central lubricating-medium supply.

6. - 7. (canceled)

8. (previously presented) The folding device of claim 1, wherein said carrier is connected to said folding drum by threaded connectors.

9. (canceled)

10. (previously presented) The folding device of claim 13, further comprising a clamping element providing a force-transmitting connection between said drive pinion and said folding-blade shaft.

11. (previously presented) The folding device of claim 13, further comprising a screw connection securing said drive pinion to said folding-blade shaft.

12. (previously presented) The folding device of claim 13, further comprising a screw connection securing said drive pinion to said folding-blade shaft from a first side, and a clamping element providing a force-transmitting connection between said drive pinion and said folding-blade shaft from a second side, thereby preventing a translational movement of said drive pinion along a longitudinal direction of said folding-blade shaft.

13. (previously presented) The folding device of claim 1, further comprising a drive pinion arranged on said folding-blade shaft, said drive pinion being connected to said folding-blade shaft with a form-fitting connection by serrated toothing.

14. (previously presented) A folding device for producing a second longitudinal fold in products of a rotary press, comprising:

a folding drum having a longitudinal axis and comprising two opposing side walls and a drum wall extending longitudinally between said side walls, said drum wall having a C-shaped cross section defining a circumferential gap between circumferential ends along a longitudinal length thereof;

a folding-blade shaft having two ends, each of said two ends of said folding-

blade shaft being rotatably mounted in a respective one of said side walls in said folding drum, said folding-blade shaft having at least two folding-blade carriers for holding folding blades; and

a carrier connected to said drum wall, said carrier extending transverse to said longitudinal axis and rotatably supporting said folding-blade shaft at a location between said side walls, wherein said carrier has a small material thickness in a longitudinal direction of said folding device and a large area extending approximately over the entire cross section of an interior of said folding drum, and said folding blades being spaced apart from one another in a region proximate said carrier by a distance smaller than 10 millimeters.

15. (previously presented) The folding device of claim 14, wherein said drum wall has a projection extending radially inward and said carrier is connected to said projection on said drum wall.

16. (previously presented) The folding device of claim 15, wherein said carrier is connected to said projection using threaded connectors.

17. (previously presented) The folding device of claim 14, further comprising a pair of bearings arranged in said side walls of said folding drum, said ends of said folding-blade shaft being mounted respectively in said side walls by said pair of bearings; and

at least one further bearing arranged in said carrier, wherein said folding-blade shaft is further rotatably supported in said folding drum by said at least one further bearing between said ends of said folding-blade shaft.

18. (previously presented) The folding device of claim 17, wherein said pair of bearings and said at least one further pair of bearings comprise self-aligning roller bearings.

19. (previously presented) The folding device of claim 14, wherein said carrier comprises a sheet-metal blank.

EVIDENCE APPENDIX

NONE

RELATED PROCEEDINGS APPENDIX

NONE